MSC Guidelines for Review of Stability Test Procedures

Procedure Number: H2-06 Revision Date: 12/22/99

References:

a. 46 CFR 170.185, "Stability Test Preparations"

b. 46 CFR 170, Subpart F, "Determination of Lightweight Displacement and Centers of Gravity"

c. Navigation and Vessel Inspection Circular (NVIC) No. 17-91, "Guidelines for Conducting Stability Tests"

d. ASTM Standard Guide F1321-90, "Standard Guide for Conducting a Stability Test (Inclining and Lightweight Survey) to Determine the Light Ship Displacement and Centers of Gravity of a Vessel"

Disclaimer

These guidelines were developed by the Marine Safety Center staff as an aid in the preparation and review of vessel plans and submissions. They were developed to supplement existing guidance. They are not intended to substitute or replace laws, regulations, or other official Coast Guard policy guidance. The responsibility to demonstrate compliance with all applicable laws and regulations still rests with the plan submitter. The Coast Guard and the U. S. Department of Transportation expressly disclaim liability resulting from the use of this document.

Contact Information

If you have any questions or comments concerning this document, please contact the Marine Safety Center by e-mail or phone. Please refer to the Procedure Number: H2-06

E-mail: customerservicemsc@msc.uscg.mil
Phone: 202-366-6480.

General Review Guidance for both Deadweight Surveys & Inclining Experiments

Trim should be less than 1% LBP, unless the hydrostatic properties for the surveyed condition include the actual trimmed amount.

The vessel should be moored as described in reference (d).

Ensure the vessel is 98% or more complete at the time of the survey.

A maximum initial heel of ½ degree is permitted, but no more.

MSC Guidelines for Review of Stability Test Procedures

Procedure Number: H2-06 Revision Date: 12/22/99

All empty tanks and voids shall be open and ready for inspection and have a gas free certificate.

A hydrometer of appropriate scale should be available to measure the specific gravity of the water at the time of the inclining.

The vessel's downflooding points must be identified and their location clearly delineated in the stability test results submittal.

Ensure that 5 freeboard readings will be taken on each side of the vessel and that they are plotted on a profile view of the vessel at the time of the survey.

Specific Guidance for Deadweight Surveys

Ensure the requirements of 46 CFR 170.185(g) are included in the submission:

- Identification of the vessel to be tested.
- Date and location of the test.
- Approximate draft and trim of the vessel.
- Condition of each tank.
- Estimated items to be installed, removed, or relocated after the survey, including the weight and location of each item.
- Schedule of events.
- Person or persons responsible for conducting the survey.

Specific Guidance for Inclining Experiments

Ensure the requirements of 46 CFR 170.185(g) are included in the submission:

- Identification of the vessel to be tested.
- Date and location of the test.
- Inclining weight data.
- Pendulum locations and lengths.
- Approximate draft and trim of the vessel.
- Condition of each tank.
- Estimated items to be installed, removed, or relocated after the test, including the weight and location of each item.
- Schedule of events.
- Person or persons responsible for conducting the test.

An initial survey of the vessel should be conducted one day prior to the inclining in the presence of the Coast Guard witness.

The list of weights to add/remove/relocate should be supplied to the Coast Guard witness prior to the survey.

The vessel should be moored such that it is capable of floating free during the course of the inclining.

Ensure that eight weight movements are planned, three points on each side of the zero point.

The inclining weights should be clearly described and either be weighed on a certified scale in the presence of the Coast Guard witness, or a valid weight certificate supplied to the witness before the test is conducted.

The weight movements should not heel the vessel more than 3 or 4 degrees to either side.

Three pendulums are required. In some cases, electronic devices or U-tubes can be swapped for a pendulum, but three measurement devices are required.

Ensure that the pendulums are long enough to achieve 6 inches deflection when the maximum heeling moment is applied. Typically, 10 feet is the minimum length of a pendulum to achieve the required deflection.

Ensure that the tankage specified in the procedure is acceptable per reference (d). The number of slack tanks must be kept to a minimum.